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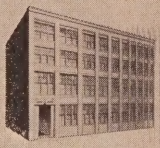

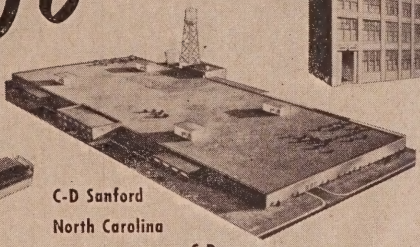

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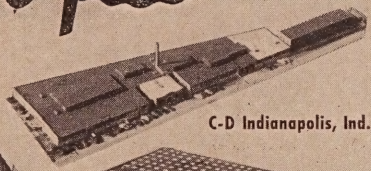

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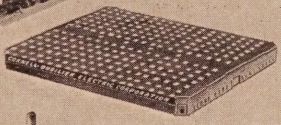

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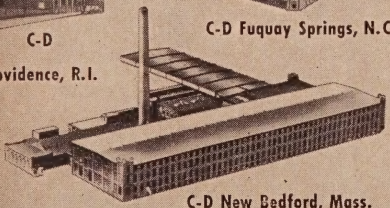

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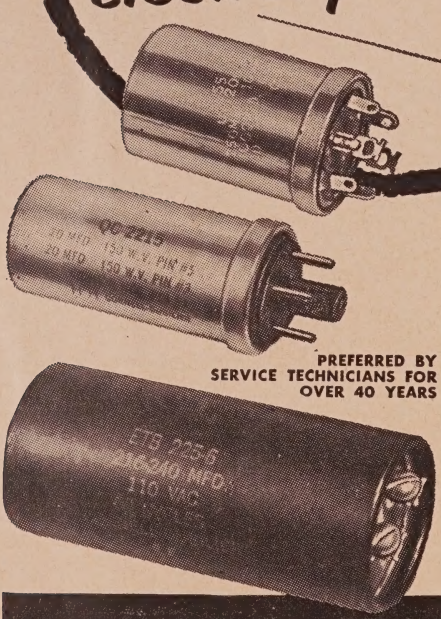

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A NEW, SENSITIZED GRID-DIP ADAPTOR

Several years ago, Carpenter[1] described an ingenious adaptor which can be used externally to convert an r-f signal generator into a grid-dip meter. The adaptor simply is connected to the output of the signal generator which need not be tampered with in any way. A number of these units were built by readers, at least one was manufactured commercially for a short time, and many of them are in use at present.

The adaptor is used like any conventional grid-dip oscillator, except that all tuning is done on the signal generator. This is an advantage, since the builder is not required to calibrate a special dial, and the signal generator calibration usually is closer than most grid-dippers.

A disadvantage of the unit is its requirement of a reasonably strong r-f signal. This was all right when the adaptor was designed, since many inexpensive signal generators at that time had 1-volt output jacks. Few

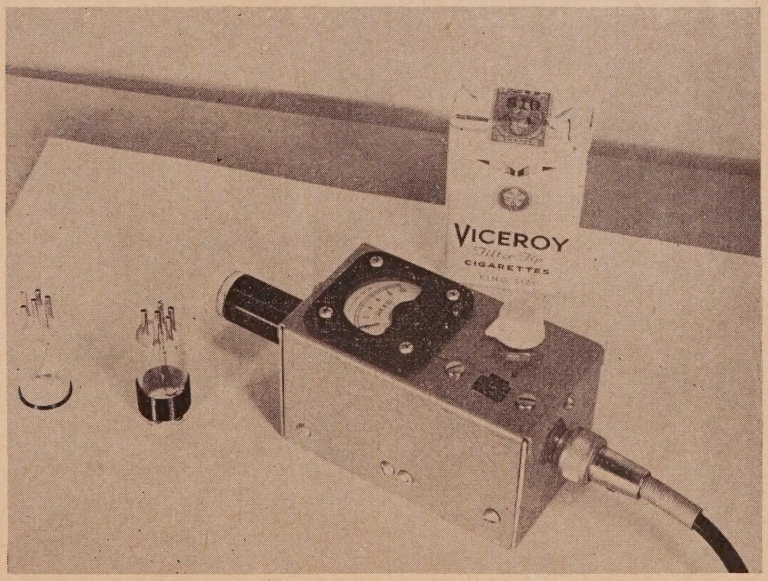

Fig. 1. THE COMPLETED GRID-DIP ADAPTOR. For size, the unit is compared with the cigarette package in rear. Small enough to be held in one hand, it functions as a grid-dip probe connected to the signal generator. The plugged-in coil covers the 100 kc - 7 Mc range. The two additional coils extend the range to 300 Mc.

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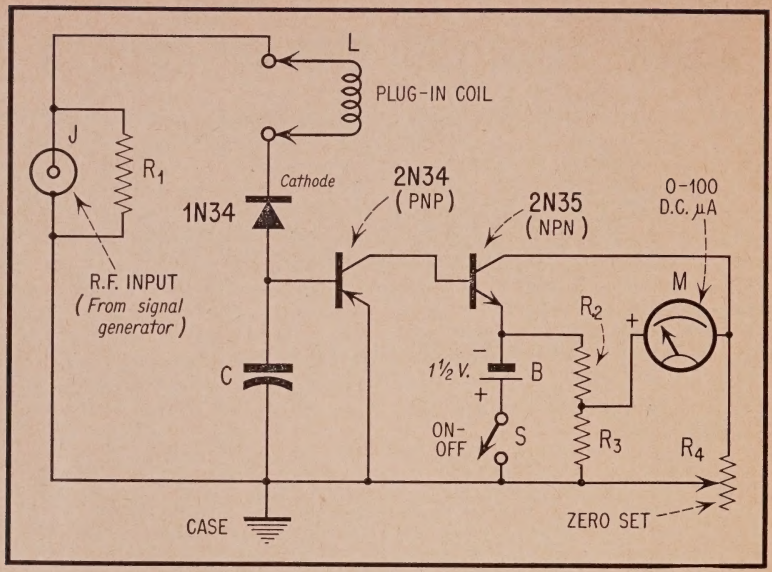


Fig. 2. Complete Circuit of the Grid-Dip Adaptor.

modern generators, however, will give the signal strength necessary for satisfactory operation of the original circuit, and changing the milliammeter to a microammeter does not profitably increase the sensitivity.

In order to obtain a more sensitive grid-dip adaptor, some technicians have considered amplification in the adaptor circuit. But the complications of an amplifier to cover the range 100 kc to 300 megacycles, and its power supply, have made it more sensible to build a complete grid-dip oscillator from the start. The Editors of the CAPACITOR have solved the problem by adding to the original dip-adaptor circuit a high-gain transistor d-c amplifier and microammeter. This results in an adaptor which will operate on extremely low r-f voltages, is powered by a self-contained flashlight cell which gives long service life, and which can be made small enough to be handled as a cable-end probe connected to the signal generator.

Circuit Details

The circuit of the new adaptor is shown in Figure 2. In Carpenter's original arrangement, the r-f voltage was applied to a circuit consisting of an untuned coil, diode detector, and milliammeter in series. Our arrangement differs only in that the d-c output of the 1N34 diode is fed into a 2-stage, direct-coupled transistor d-c amplifier and after amplification deflects a 0-100 d-c microammeter.

R-F voltage from the signal generator output is applied to the adaptor through a concentric jack, J. This jack is shunted by a 150-ohm resistor R_1, which completes the diode d-c

return path when the generator output is capacitor-isolated. The plug-in coil, L, requires no tuning and is coupled to the circuit under test while the signal generator is tuned. Three coils are needed (See COIL TABLE). One (L_1) covers the range 100 kc to 7 Mc, L_2 covers 5-40 Mc, and L_3 35-300 Mc.

The d-c amplifier is of special design. The transistors being direct-coupled, no interstage resistors are required. By using a PNP transistor in the first stage and an NPN in the second stage, we can get along with only one 1½-volt battery, B. The first transistor receives its collector voltage from the battery through the emitter-base path of the second transistor. The PNP collector voltage thus is negative, while that of the NPN unit is positive. The PNP transistor is a Sylvania 2N34; the NPN a Sylvania 2N35. These complementary units do not have to be matched. The microammeter, M, is operated in the 2N35 output circuit through a 4-arm resistance bridge to allow zero-setting in the same way that this is accomplished in a vacuum-tube voltmeter circuit. The four arms consist of R_2, R_3, R_4, and the internal collector-to-emitter resistance path of the 2N35 transistor. A d-c input of only 0.4 microampere into the 2N34 will produce full-scale deflection of the meter. Capacitor C is provided for r-f bypassing. Meter response is very nearly linear, although this is not a necessity for "dipper" operation. Current drain from the 1½-volt cell is slightly higher than 7½ milliamperes at full-scale deflection of the meter.

Construction

Figures 1, 3, and 4 show constructional details. In an effort to keep the dimensions of the adaptor as near as possible to probe size, a 1½-inch microammeter (International Instruments, Model 151) has been used. The case is an aluminum chassis box; 4" long, 2¼" wide, and 2¼" high (LMB No. 107).

The three coils are wound on ¾"-diameter polystyrene plug-in forms (Amphenol 24-6H). The accompanying COIL TABLE gives the number of turns for each coil. Coil L_1 occupies almost the entire length of its form. The shorter coils, L_2 and L_3, must be wound close to the top ends of their forms for easy coupling into the circuit under test. The coil in use plugs into an Amphenol 78-S6S socket mounted in a ⅝"-diameter hole in the nose-end of the adaptor case.

In the rear end of the adaptor case is mounted a concentric jack, J, (Amphenol 75-PC1M). A matching cable-end plug (Amphenol 75-MC1F) screws onto this jack for introduction of the r-f signal. The jack and plug are standard microphone-type connectors. A length of microphone cable or flexible coaxial cable, fastened to the plug, connects to the output terminals of the signal generator.

The ON-OFF switch (S) is a small slide-type unit (Wirt SW724) which is mounted on the front panel in line with the ZERO-SET potentiometer, R_4, under the meter.

Figure 3 shows internal construction and wiring. The 1½-volt cell is held to one side of the case by a strap. On the opposite side are mounted two Cinch-Jones Type 3-141, 3-screw terminal blocks. The transistor pigtails are held under the screws of these blocks, thereby making soldered con-

nections unnecessary. Resistor R_1 is soldered directly to the terminals of jack J. The 1N34 diode is soldered between two lugs of the coil socket; one lug being the coil terminal, and the other one is one of the unused lugs of the socket.

Care must be taken to observe the correct polarity of the diode, transistors, battery, and meter. These polarities are indicated clearly in Figure 2.

Do not depend upon the metal case to complete any part of the wiring. Instead, wire all portions of the circuit and make only one ground connection to the case, as shown in Figure 2.

Further miniaturization undoubtedly is obtainable through the use of a 1-inch meter, subminiature potentiometer and switch, penlight cell, and by soldering the transistors directly into the circuit.

If the reader does not desire a small-sized unit, standard-sized components may be employed readily.

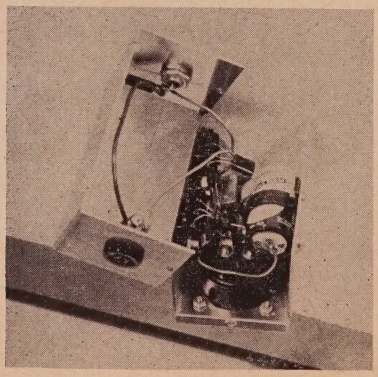


Fig. 3. Internal Construction of the Adaptor.

Operation

To place into operation, follow the procedure: (1) Connect the adaptor to an r-f signal generator or test oscillator. (2) Set the output control (attenuator) of the generator to zero. Either modulated or unmodulated output may be used. (3) Plug a coil into the adaptor. (4) Turn-on the adaptor switch. (5) Set the meter to zero by means of potentiometer R_4. (6) Switch-on the generator. (7) After the generator has warmed-up, advance its output control to obtain a good, readable deflection of the meter. (8) Hold the coil close to the circuit under test, while tuning the generator. When the generator frequency corresponds to that of the circuit under test, the pointer of the meter will swing sharply downward. (9) If this dip is not obtained, the resonant frequency is not within the range of the adaptor coil in use. Change coils. ALWAYS TURN THE ADAPTOR SWITCH OFF BEFORE CHANGING COILS. The reason for this is that the input circuit of the first transistor is open when no coil is in the circuit and this will cause slamming of the meter. (10) If the meter deflection swings beyond full-scale as the generator is tuned, reduce the setting of the generator output control.

Some service-type signal generators operate on harmonics of the dial frequency in one or two of their highest-frequency bands. This fact must be kept in mind when using the grid-dip adaptor in those ranges. The best results are obtained with

generators supplying fundamentals all the way. Response with harmonics is not nearly as sensitive and leads to some confusion and error when identifying the frequency.

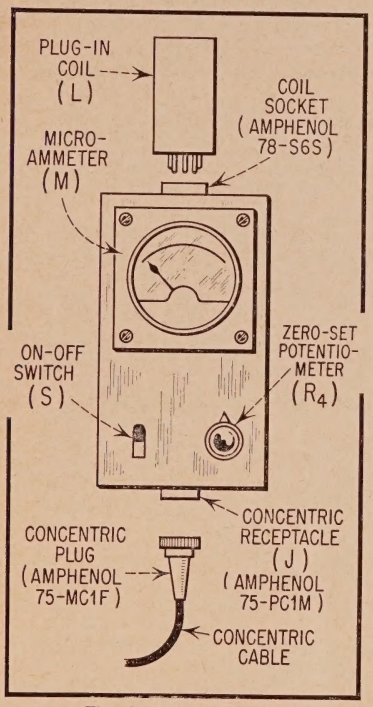


Fig. 4. External Layout of Grid-Dip Adaptor.

PARTS LIST FOR FIGURE 2

B—Medium-sized 1½-v flashlight cell — Ray-O-Vac 1LP or equivalent.

C—0.002 ufd mica — Cornell-Dubilier 1W5D2

J—Concentric chassis receptacle — Amphenol 75-MC-1F

L—Plug-in coil. See COIL TABLE.

M—1½-inch 0-100 d-c microammeter — Int'l Instruments Model 151

R_1—150 ohms ½ watt carbon

R_2—100 ohms ½ watt carbon

R_3—100 ohms ½ watt carbon

R_4—10,000-ohm wirewound potentiometer

S—Spst slide switch — Wirt SW724

Semiconductors: 1 Sylvania 2N34 transistor, 1 Sylvania 2N35 transistor, 1 Sylvania 1N34 germanium diode

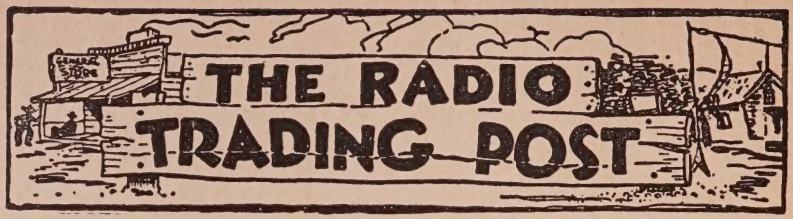
REFERENCES

1. **The Tubeless Grid-Dip Adapter,** Douglas H. Carpenter, RADIO & TELEVISION NEWS, May 1949, p. 60.
2. TRANSISTORS, THEORY AND PRACTICE (Book), Rufus P. Turner. (Gernsback Publications, Inc.) Transistor amplifier-type d-c microammeters: pp. 103-104.
3. **Transistorized Voltmeter,** Rufus P. Turner, RADIO - ELECTRONICS, December 1954, p. 54.

COIL TABLE

L_1	100 kc to 7 Mc.	145 turns No. 32 enamelled wire.
L_2	5 kc to 40 Mc.	17 turns No. 22 enamelled wire.
L_3	35 kc to 300 Mc.	3 turns No. 22 enamelled wire.

All coils are closewound on ¾"-diameter polystyrene plug-in forms (Amphenol 24-6H).



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SELL OR SWAP — Bird Co. model 74, 6-position coax-switch, slightly used 4-125 tube, 1. n. adjustable 10-30 amps., 110 v., 60 cy., GE overload relay; milliammeters in all ranges. Crown, Box 3042, Albuquerque, N. M.

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WANT — A.R.R.L. License Manual '38; Marconi tubes. Have l. n. 4D32's; Vibroplex bug; 9 amp. Variac; coax relay, etc. Charles T. Fernandez, 81 Warren St., Roxbury 19, Mass.

SWAP — Sylvania model 501 marker gen. for Sylvania polymeter model 302. T. C. Radio and TV Service, 4725 So. Damen Ave., Chicago 9, Ill.

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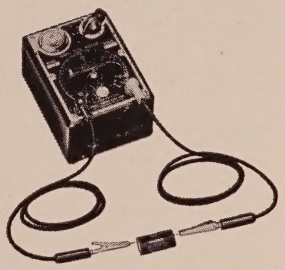

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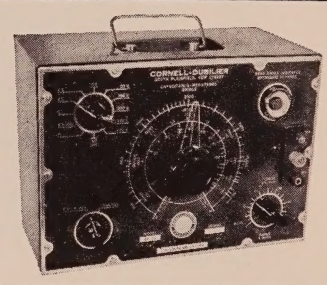

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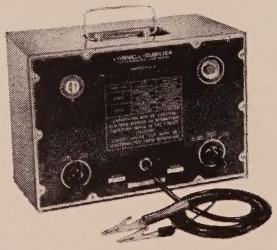

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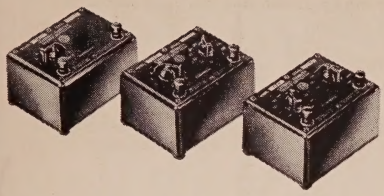

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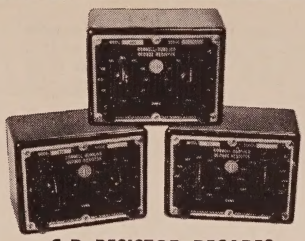

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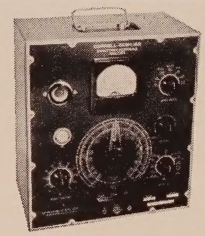

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Plants in South Plainfield, N. J.; New Bedford, Worcester and Cambridge, Mass; Providence and Hope Valley, R. I.; Indianapolis, Ind.; Sanford and Fuquay Springs, North Carolina; Venice, California; Subsidiaries: The Radiart Corporation, Cleveland, Ohio and Cornell-Dubilier Electric International Corporation.

WANTED — Eico scope 425, or scope with push pull amplifiers in good shape. Have 16 in. TV set, Masco amplifier, 120 bass accordion, prism binoculars, test instruments, and cash. John Arnold, Box 84, Bluffs, Ill.

FOR SALE — The following issues of QST: Jan., Feb., June 1939; Jan., Aug., Oct., Dec. 1938; Sept., Nov., Dec. 1937; make offer. For details, contact Richard Smither, 1511 Franklin, Danville, Ill.

WANTED — Lab test equipment: frequency meter, scope, and what have you? Good cond. and very reasonable. Will swap. Murray Cohen, 2078 Wallace Ave., New York 62, N. Y.

SELL OR TRADE — Supreme model 504A tube and set tester in perf. cond. Complete with test leads, instruction book and original carton; two BC-457 aircraft xmitters; unused ATR battery eliminator for 6 or 12 v. operation. Want mobile rig or ?. E. Gigliotti, 249 S. Main St., Bangor, Pa.

FOR SALE — 7" Motorola TS-40, $15.50 and 16" RCA 9TR29 AM-FM radio, $15.95; both table models and in good cond. Send anywhere. Jones Radio Co., 1115 Rambler Ave., Pottstown, Pa.

SELL — Precision E-200 sig. gen., very good cond., $25 cash plus $10 net worth of tubes, my choice, standard brands, boxed unused. C. Elgasser, 1920 Fern St., San Diego 2, Calif.

WANTED — Air compressors high pressure GE, Westinghouse or Cornelius. Will pay cash or trade ham or TV service equip., need vibrator tester also. Robt. Franks, 715 Broadway, Bedford, Ohio.

FOR SALE — Capitol Radio Engineering Institute corr. course: Practical Radio Engineering. 1954 edition, 56 lessons, 12 bound vols.; plus slide rule and three reference books. Exc. cond., $48 postpaid (cost $152). D. Ketchum, 926 West Princeton St., Ontario, Calif.

FOR SALE — "Concertone" tape recorder model 1401, 15 I.P.S. and 7½ I.P.S. in carrying case with 8" Monitor speaker, exc. cond., $190. R. H. Klingberg, 2219 West Addison St., Chicago 18, Ill.

SELL OR TRADE — Westinghouse AM-FM table radio, $30; Hallicrafter S-41W, $25; Pentron wire recorder phono radio portable, $35; Zenith battery electric portable, $15. Newton Center Radio Shop, 759 Beacon St., Newton Center 59, Mass.

SELL OR SWAP — 500 popular type radio and TV tubes, 6SN7, 504, 6BQ6 12AU7, 12AX7, 50L6, 35F5. Want Hi-Fi tape recorder and speaker with cabinet or what have you? Barbara Palmer, 663 Fox St., Bronx, N. Y.

FOR SALE — 50 Columbia coin operated radios 10 cents per ½ hr.; 2 Regency boosters DB 520. Best offer. Don's, 4014 Falls Ave., Waterloo, Iowa

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FOR SALE — Unused Capacitor Decade, Heathkit DC-1, with instruction manual, $12, postage extra. Joseph F. Dineen, 9 Winter Terrace, Westwood, Mass.

WANTED — Allied model 730 VTVM, also 2 AC probes for same model. State cond. and price. Edward F. McCarren, 17 Roscoe St., Needham Heights 94, Mass.

SELL OR SWAP — Auto shop manuals, late models, varied makes, many with thorough radio sections. B. Davis, 79-19 68th Ave., Middle Village, N. Y.

SWAP OR SELL — A. B. Dick model 30 mimeograph machine and stencils for radio test equipment, tube checker, sig. tracer, etc. R. E. Howland, 1741 Washington Ave., Huntington, W. Va.

WANTED — 5" scope; sweep sig. gen., designed for TV servicing; VTVM multitester with ohmmeter; Capacitor-Resistance Bridge: C-D BF-60 or Sprague TO-3. Francis Kennedy, 4919 Catherine St., Philadelphia 43, Pa.

FOR SALE — Heathkit 0-6 scope, OK, $32; E200C Precision, $30; IT1 booster, $4, all for $55. Mimna, 271 North 6th St., Newark, N. J.

WANTED — Gonset or similar mobile converter, including cables and instructions. State full price postpaid. Joe Coffield, 1402 West 4th St., Brooklyn 4, N. Y.

FOR SALE — Hickok indicating traceometer 156A, 1. n.; 2 RF voltmeters, zero-center DC VTVM; AF voltmeter, wattmeter, 5 meters, 5 leads, manual, 12 tubes, $95. Frank York, 114 - 38 196th St., St. Albans 12, N. Y.

FOR SALE — Sam's Photofacts in binders Vols. 1 thru 17, exc. cond. Best offer. W. Bartow, 14 Benjoe Drive, N. Amityville, N. Y.

SELL OR TRADE — RCA projection TV rcvr. in exc. cond., cost $1100, best offer. Edward Tanrath, R. 2, Algonquin, Ill.

FOR SALE — Dual wave gen.; Howard F.M. converter, Heath audio generator, Autronic dimmer for G.M. cars. Want Police radio for 152-174 mc. W. Fuller, 3137 W. Michigan Rd., Dimondale, Mich, R. 1.

FOR SALE — Triplett tube tester, model 2413, l. n., $15. William Bechtel, 1125 Pleasant St., Indianapolis 3, Ind.

SELL OR SWAP — Model 3048 Gonset sig. slicer, 262-265 kc. IF. with schematic and instructions, l. n. Want Rider Service Manuals, or make offer. Paul A. Austin, Box 1134, Clifton, Ariz.

FOR SALE — Air King wire recorder and record player combination, complete with microphone, wire, etc., portable carrying case, perf. cond., $45. Berman Distributing Co., 1188 Broadway, Brooklyn 21, N. Y.

TRADE — 2 radio television courses for 1200 or 1500 v. C.T. plate xformer and 30 or 40 w. modulation xformer. Want: 12 SL7GT tubes. Frank H. Carlson, Aledo, Ill.

FOR SALE — Sams Photofacts 1 to 240, $300; also Riders Radio-FM manuals 8 — 20, $125. R. Reber, 87 Hobart St., Rochester 11, N. Y.

FOR SALE — Triplett: model 3413 tube checker, model 3432 sig. gen., good cond., best offer. Warwick Radio and TV Service, 2636 Oakwood Drive S. E., East Grand Rapids, Mich.

FOR SALE — Craftsman C-800 tuner, AM needs adjustment, FM perfect, $85; Jensen K210 speaker in 4½ cu. ft. Jensen bass Reflex, $25. George Fisher, 37-47 61st St., Woodside, L. I., N. Y.

FOR SALE — Model 362-2 Crosley AM-FM tuner chassis in original carton, $20 prepaid. E. T. Larson, Ostrander, R. 2, Ohio.

FOR SALE — QST from 1937 to 1948, complete. E. J. Henry, Jr., 471 Richmond Terrace, New Brighton, Staten Island, N. Y.

FOR SALE — Hallicrafter SX-42 with R-42 companion speaker, l. n. Any offer above $130. Prefer local buyer but will ship F.O.B. Raymond Straub, 1709 Gates Ave., Brooklyn 27, N. Y.

FOR SALE — Eico tubetester model 625, $40; Eico model 145 sig. tracer, $22, both in exc. cond. Gerald Arnold, Box 37, Copenhagen, N. Y.

SELL — Radio News, from 1945 to 1952; QST, 1944 to 1953; GE self-charging portable rcvr. C. Horn, 325 E. 163 St., New York 51, N. Y.

WANTED — RCA model WR-49A sig. gen.; IRC or ohmite resistor cabinets with or without resistors. G. H. Swiska, 109 E. School St., Woonsocket, R. I.

FOR SALE — Sams Photofacts 1 thru 150, complete with binder and notes; also two additional binders with 13 assorted Photofacts, $150. You pay postage. Nicholas D. Barbieri, 405 E. 182 St., Bronx, N. Y.

FOR SALE — Hallicrafter SX43 rcvr. with R44 matching speaker, exc. cond., all new tubes, $90 FOB; Hickok 305 scope, exc., $40; astatic TV Booster model AT-1 mahog. cab., $10. O. G. Hoffman, 3330 Melrose Ave., Lincoln 6, Neb.

FOR SALE — 2 unused Sparton TV101 and Regency RC600 UHF converters, all three for $45; 5 TV boosters, Standard and Electrovoice, best offer over $30. Marothy Radio, Coldwater, Mich.

SELL OR TRADE — Converted SCR 522 rcvr. and power supply, partially built 100 w. modulator and speech amp., Command xmitters, BC-453 Q-5'er. Want Hi-Fi or photographic equip. Prefer local deal. Jack S. Margolis, 721 N. Fuller, Los Angeles 49, Calif.

WANTED — 6AE7 GT tubes, W. B. Williams, 914 S. Franklin St., South Bend 18, Ind.

WANTED — Pilot 3'' TV in working cond. Robey's TV, Waldore, Md.

WANTED — 2 walkie-talkies in working cond. Melvin Malafa, Lankin, N. Dak.

WANTED — McMurdo Silver Masterpiece VI radio, complete and in good cond., together with instruction bulletins, if available. Hollis Baird, Dept. of Physics, Northeastern University, 360 Huntington Ave., Boston, Mass.

SELL OR TRADE — Hammarlund HQ-129X rcvr. with speaker and spare tubes, in exc. cond., $125; 500 v. DC power supply for 60 w. xmitter, $12 or trade for portable Geiger counter. E. L. Freud, 206 Manhattan Ave., Hawthorne, N. Y.

FOR SALE — Coyne radio and electrical textbooks, manuals and handbooks. George Zanis, 8430 Abington, Detroit 28, Mich.

FOR SALE — Hallicrafters S-40-B communications rcvr., includes calibrated "S" meter, antenna tuner, etc. Highest offer over $75. Karl Thurber, 1610 Metropolitan Ave., New York 62, N. Y.

FOR SALE — RCA Hi-Fi amplifier, includes mike, mixer preamp, power supply schematics, high-low phono inputs, all pentode tubes, tone controls. Exc. cond., high value, $60. Dick James, 1214 Fairoaks, Peoria, Ill.

FOR SALE — Sams unused Photofacts, 250 thru 271, $30 Postpaid. Nelson's TV Sales and Service, Mahnomen, Minn.

WANTED — Will pay list price for new IN6 tube. H. C. Dow, Box 403, Wakefield, R. I.

SELL OR SWAP — Roto-Sho window display rotator, $20; 2 large metal IRC resistor cabinets, $3 each; TV neon sign with xformer, $20; UTC cathode mod. xformer CM16, $2.50. Need test equip. Alex Hellman, 83-55 Woodhaven Blvd., Woodhaven 21, N. Y.

WANTED — Vol. 1 of RCA television Pic-O-Guide for cash. State price in first letter. Derry's Radio Shop, King's Mountain, Ky.

FOR SALE — Pair VFO phone transceivers, 115 mc. One completely portable in case which holds batteries. Other operates 115 v. AC or on batteries. Exc. cond., include handsets, $40 FOB. David Hodges, 7 Sycamore St., Bronxville 8, N. Y.

FOR SALE — BC 457A converted to 80 meters and Eimac 250TH in original carton, $10 each; Johnson N125 neutralizing condensor. Make offer. George Olsen, 48 Overbrook Rd., Rochester 11, N. Y.

SWAP — Clean, crisp copies Proc. IRE, Oct., 1944 to date (complete) and Electronics, 1934 to 1953 (incomplete) for Hallicrafters SX-42 rcvr. and speaker in operating cond. Peter Kailus, 4625 Clausen Ave., Western Springs, Ill.

FOR SALE — Simpson genescope, model 480, 1. n., $300. Arlon F. Humphrey, 917 N. Hickory, Owosso, Mich.

WANTED — Hallicrafter rcvr., model SX-62A, or similar. State price and cond. W. Sahakian, 28 Hillside Road, Dedham, Mass.

FOR SALE — Radio, 1937 thru 1941; also some CQ, QST, R9S. Clifford Storch, 5 Winfield Ter., Great Neck, L. I., N. Y.

FOR SALE — Tape recorder, $50; Gonset Commander with VFO, $85; Super 6, $40; Elmac PMR-6A, 2 power supplies, $115; BC-455, 110 v. AC, $20; BC-946, 110 v. AC, $15. Howard Humpton, 360 California Ave., Memphis 5, Tenn.

SWAP — ARB rec. 195-9050 kc. converted to 115 v. with speaker and power supply; Webcor 78 RPM record changer; 15 w. Concord Hi-Fi amp. Want tube checker, sig. gen. and VOM. Maurice Gillette, 1209 Scanlon Way, Cloquet, Minn.

FOR SALE — GE A-901 record comb., Astatic FLC pick-up arm, 78 RPM crystal cart., diamond stylus Stancor push-pull output trans. No. A-2313 RCA tubes. J. Holloway, Room 643x, YMCA, Philadelphia 2, Pa.

SELL OR TRADE — 16" used Sylvania TV, console model 1-090. Also four others that need slight work. Make offer. Marion Simandl, 2523 Perrysville Ave., Pittsburgh 14, Pa.

SELL OR SWAP — BC-221-AA freq. meter with AC supply; Philco AC sig. gen., 120 kc. to 35 mc.; Jones micromatch MM2; Eico 360 sweep gen. Need diagram for Solar CE type 1-60 capacitor analyzer. W. Waterman, 55 Lake Ave., Middletown, N. Y.

FOR SALE — Original Hallicrafters S-38 with variable BFO and noise limiter; perfect ARC 5/R-28, 100 to 156 mcs; RCA MI-4288-J 50 w. PA amplifier, exc. cond. Best offers. R. L. Evans, Jr., Box 28, Ambler, Pa.

FOR SALE — Books: Modern Radio Servicing, Ghirardi; Principles of TV Engineering, Fink; Radio Engineering, and Radio Engineers' Handbook, Terman; Radio Manual, Sterling; Communication Engineering, Everett; Communication Circuits, Ware and Reed; Practical Calculus, Palmer, $20 FOB. R. Schilling, Radio Station WIMS, Michigan City, Ind.

SWAP — Radiola 33 with speaker in working order for what have you. Roland Slatkoff 3834 Southern Cross Dr., Baltimore 7, Md.

FOR SALE — DTI 2" scope, in good working cond. with 4 leads, $15. R. H. Stillwell, 41 Main St., Box 542, Ridlonville, Maine.

FOR SALE — ARC-5 xmitter 3-4 mcs. modified; prop pitch motor; radio fits '41 Ford with Built-in and noise limiter; 15CP4 and 7JP4 kines, meters, xformers, etc., reasonable. R. Faeth, 11 Godfrey Ter., Glen Rock, N. J.

FOR SALE — Boes VOM 113, $15; Universal 5-tube pushbutton car radio, $5; Approved Electronics A-460 field strength meter, $20; Oak Ridge 104 synchro-sweep gen., $30; Boes 214 tube tester, $20. C. Waterman, 703 Pleasant St., Athol, Mass.

TRADE — Eico scope 425 without case, good cond. Want book "The Recording and Reproduction of Sound" by Oliver Read (second edition 1953). Local only. Ernest R. Minott, 1075 University Ave., Bronx 52, N. Y.

WANTED — Tubes, transmitting, receiving and special-purpose industrial types such as Klystrons, etc.; Hickok tube checkers, Variacs, etc. Cash or swap for choice equip. and tubes. B. N. Gensler, 330 West 11th St., New York 14, N. Y.

FOR SALE — National NC-183 rcvr., perf. cond. Geo. Snyder, Crumpler, W. Va.

WANTED — CD Capacitors vol. 1, No. 2 Apr., May, June 1937; vol. 1, No. 4 Oct., Nov., Dec. 1937; vol. 3 No. 2 June to Dec. 1939; vol. 1 Radio Broadcast Data Sheets Series 1 by Doubleday Doran Co., Inc. Joseph J. Simpson, 85-39 152 St., Jamaica 32, N. Y.

FOR SALE — 2 ten element Baline Yagis, unused, CH. 4 $15, CH. 7 $7, or both 20 express collect from Bristol, N. H.; Edward FM tuner, working cond., $15; 2 RCA 6" dynamic speakers, $5 each. J. W. Doherty, 85 Candy La., Syosset, N. Y.

FOR SALE — Knight 30 w. mobile amp. with turntable 6 or 110 v., $50; Craftsman RC-10 AM-FM tuner, 1. n., $70; Bell RT-65B tape recorder, perf., $90; Motorola AM-FM radio 72XM, $25, and portable 52L14 with batt., $22, both exc. cond. C. Squires, 36 Kelton St., Orange, Mass.

WANTED — G.E. model 800 TV 10" set. Must be exact model in plastic cabinet. State cond. and price. Will pick up "local." Seymour Cohen, 1595 Macombs Rd., Bronx 52, N. Y.

FOR SALE — Used Police-alarm radio 30 to 50 mc., good cond., $32.50; rotor converter, DC — AC 1/8 hp., $25, A-1 cond. Charles A. Connor, 712 N. Dearborn S., Chicago 10, Ill.

FOR SALE — Dynamotor, Sig. Corps BD-77, converted for 6 v. input 400 v. output, filtered, fused, with mount and connectors. Good cond., $12. John Heitzman, 33 Browning Ter. Kingston, N. Y.

TRADE — Karlson type spkr. enclosure, blond mahog. and Stephens 8-cell horn. What have you? Albert J. Filiponis, 14 Norwood St., Fitchburg, Mass.

SWAP — Heath tube checker, never used after initial tests, for Heath model A-9 or similar amplifier, Hi-Fi equip. of SW rcvr. Jan Klopping, 2057 Dauphin, Mobile, Ala.

SWAP — BC453 and BC454 complete with 110 v. AC power pact, will furnish head phones or speaker for TV set. E. E. Evans, New Hampton, Iowa.

FOR SALE — Pilot FM tuner, model T-601, used but in good cond., $15. Roy Durso, 384 Sackett St., Brooklyn 31, N. Y.

WANTED — Postwar transcriptions or LP's by Shep Fields' Orchestra. Must be in good cond. Frank Obrovac, 7 Franklin St., Uniontown, Pa.

SWAP — Motorola model 505 car radio, less speaker and dial; DTI sig. gen. battery operated. Want battery eliminator 110 v. AC 6 v. DC. Melvin Saur, Kent City, Mich.

FOR SALE — Riders Manuals 7 - 13, $12. Alfred M. Alexander, 159 Putnam St., New Haven, Conn.

SELL OR TRADE — Heathkit rcvr. assembled and in cabinet. New 457 transmitter; heavy-duty power supply; parts for Command xmitters; NRI multitester kit with rf head, AC model, perf. cond. Cash for good comm. receiver. Lew Saunders, 229 W. Burnham, Battle Creek, Mich.

FOR SALE — Radio TV service shop and beautifully furnished home, on lake in Florida. Exc. location for good TV repairman and installations. New test equip. Write for details. Peters Radio TV Service, Box 405, Floral City, Fla.

WANTED — Portable radio for AC and DC. Will pay cash or trade. A. E. Levriett, 816 Broxton, Jacksonville, Fla.

FOR SALE — Like new Eico sweep gen. less crystal and Eico scope less 5" tube, both for $40. Frank Scatoni, 143-28 97th Ave., Jamaica, L. I., N. Y.

FOR SALE — Complete set Sams Photofacts vols. 1 to 275, in binders, value over $480. Best offer. Harvey's Radio Service, 200 Stonecliff Dr., Rochester 16, N. Y.

FOR SALE — Simpson model 480 genescope, 1. n., complete with all probes and demodulator, $275 FOB. Sam Goldish, 3830 South St. Louis Ave., Tulsa 5, Okla.

WANTED — Radio conversion manuals vol. 1 and 2; radio handbooks except 5, 10, 11, and 13 also A.R.R.L. handbooks except 20 to 23, 25, 26, 28, and 30. Marvin Gurlin, 111 White Horse Pike, Audubon 6, N. J.

FOR SALE — NRI 3" scope and sig. gen. made with TV course and multimeter made with Sprayberry course, exc. cond., all for $60. F. S. Rossetti, 1 Matthew Rd., Branford, Conn.

WANTED — Employment as TV Serviceman. CTI graduate, a year and a half experience, can handle general run of service and repairs. Prefer upper New England location. Wendell Oliver, 302 Rawley Ave., Waterbury 6, Conn.

FOR SALE — 813 transmitter as per Jan., 1954 QST with TZ-40 Class B modulator, power supplies and antenna tuner. Cost $350 to build, want $225. C. L. Piester, Box 594, Fort Collins, Colo.

FOR SALE — 522 xmitter wired for 2 meter operation, less power supply, exc. cond., $20; also MR-3 all-band mobile rcvr., $35. Mort Schwartz, 79-16 164th St., Jamaica, N. Y.

FOR SALE — Sprayberry course, no kits, good cond., $35; RCA Pict-O-Guides, vols. 1, 2, 3, also Sams TV tube location guides, vols. 1 and 2, all for $5. Page Taylor, 106 Prospect St., Nutley, N. J.

FOR SALE — Heathkit 5" scope model 0-8, new large cathode ray tube; assembled and guaranteed in exc. cond., $30. Electric Supply Co., Osage, Iowa.

SWAP — Antique radio equipment (about 1918-1925), for modern test equipment. A. R. Bolz, 219 Morris Ave., Lutherville, Md.

TRADE — DeForest Radio TV course, RCA color course, Weston analyer, GE CR bridge, 4 x 5 Century camera, toward 16 mm camera and projector, tape recorder, typewriter, or TV chassis that employs 21FP4A CRT. Wm. Barber, 309 Alexander St., Youngstown, Ohio.

FOR SALE — Going out of business. Radio parts tubes and accessories at attractive prices. Robert L. Odell, 502 12th St., Tell City, Ind.

SELL OR TRADE — Riders, vols. 1 thru 14, $80; QST's in binders, 1936 thru 1943; 200 Westinghouse 6J6's 50 cents each; Carter dyn. 530 v. at 220 ma., $30. All in A1 cond. Snow, 1011 N. Forrest, Altus, Okla.

FOR SALE — Westinghouse: 0 to 100 M.V. DC and 0-75 and 150 v. meters, 20 amp., 100 M.V. and 500 amp. shunts, mounted, set of calibrated leads, all mounted in 12" x 12" black hardwood case. $35 plus transportation. Stephen Stewart, R. 2, Power Plant 2, Saugus, Calif.

FOR SALE — Ultra Hi-Fi output xformer, General Radio 942-A, $45; factory improved Jensen Tweeter RP302, $29. A. K. Olson, 3437 Blaisdell, Minneapolis, Minn.

FOR SALE — 30 amp 24 v. gen. Leece Neville L-3, $10; Sola constant voltage xformer 115 v. 80 v. a., $7.50. Chrest B. Johnson, 927 Pecore, Houston 9, Tex.

FOR SALE — Model TV-40 Superior CRT tube tester, $10, Pilotuner tuning FM band 88-108 mcs., $15; 4400 v. C.T. 450 mas. plate xformer, $25, in exc. cond. Ray Radio, Box 595, Lancaster, Ky.

FOR SALE — Rider's manuals 6 thru 17, $50; Solar CF exam-eter, $25; Eico sig. tracer 145, $10; Triplett 1632 sig. gen., $25. Good cond. C. E. Wheeler, 295 Cerritos Ave., Long Beach 2, Calif.

SELL OR TRADE — Back issues of Radio-Electronics, Radio News, Astounding Science Fiction, from 1945. Steatite 3E29, etc., sockets (Johnson model 122-101), 25 cents each or what have you? Jack B. Cooper, 20 Seaman Ave., New York 34, N. Y.

SELLING — Hi-Fi in blonde mahogany cabinets: 2 ultra linear improved Williamsons, 2 Western Elect., 2 Altec Lansing, speakers diamond Pickering pickup, Rekokut and Gerrard phono AM-FM, chairside remote phono, TV, etc., DC Pre-Amp., $700. John Fox, 7913 Fletcher, Chicago, Ill.

FOR SALE — New Geiger counter with exploring probe, leather carrying strap, $25 or swap for tri-band Gonset converter or other mobile equip. M. E. West, Rt. 2, Lenoir, N. C.

WANTED — VHF mobile xmitter-rcvrs., 10 to 30 w. 152-160 mc. in any cond. or any make manufactured since 1950. State details for cash offer. Electro Craft Industries, Inc., 68 Jackson St., Stamford, Conn.

FOR SALE — Radios, test equipment, and amplifiers. John W. White, 403 Sterling Ave., Winona, Miss.

FOR SALE — Sylvania polymeter type 221Z, Hickok 5" scope model 665, complete with Scala probes, BZ-1-2-3, never used. M. Mann, 255 Central Ave., Jersey City 7, N. J.

SELL OR TRADE — Isolation xformer 2.5 KVA; GE model 9TM819A1; motor driven DC supply for teletype. 110 v. at .300 ma. Want teletype equipment or cash. Henry A. Galbraith, 1214 South Alvord Blvd., Evansville 14, Ind.

FOR SALE — Precision: series ES-500 Cathode Ray oscillograph, series EV-20 VTVM and multi-range test set, series E-200-C sig. gen., all 1. n. Box 264, Stonington, Conn.

FOR SALE — DeForests Radio-TV Electronics correspondence course, includes all project schematics, $35. Earl W. Lambert, 750-95th St., Niagara Falls, N. Y.

FOR SALE — Hickock: Videometer 650, scope 505, TV alignment gen. 610, linearity bar gen. 620, microvolt gen. 191X, Simpson field strength meter 488; 600 tubes. Jerry's TV, 30 Frank St., Warsaw, N. Y.

SELL OR SWAP — CREI Radio Engineering Course, complete 19 vols., exc. cond., 8 years old, $30 or power mower, floor waxer-polisher or good camera. Simon Turniansky, 45 Buffalo St., Elmont, N. Y.

FOR SALE — Unused 32V3, $550; A54 Elmac xmitter, $75; 50 feet Elprodco Tower, $25; plate xformer 4700 VCT .775A, $25; unconverted BC453, $7.50; 20 w. Rauland amplifier, $15. Frank Guetter, Orland Park, Ill.

FOR SALE — Motorola UHF rcvr. B-19-19A; Motorola xmitter T-69-20A; aircraft xmitter and rcvr. GF11 and RU16; Collins xmitter 32-G; Browning preselector. Interested in Biley CCO Osc. J. R. Chaney, 209 W. Rockwell St., Elkhorn, Wis.

FOR SALE — Sams Photofacts vol. 1 thru 24, good cond. in binders, $12 vol. John J. Baxter, Blackshear, Ga

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SWAP — Unused Sensitive RD2N Geiger counter with metal tube and detachable pulse counter with ratemeter. Want good 50-75 w. xmitter (phone) and power supply. Prefer 50 w. Globe Scout. What have you? F. Scaglione, 111 Stuyvesant Ave., Jersey City, N. J.

FOR SALE — Collins 75A3, factory realigned and modified, NBFM adapter, xtal calibrator, 3 and 6 kc. filters, matching speaker, $425; 32V2 with NBFM adapter, 35C2 low pass filter, coaxial relay (No TVI), complete set spare tubes including two 4D32s, $475. Package deal, $850. Ed Astfalk, 14 Beekman Pl., Glen Rock, N. J.

WANTED — Disc recorders of good semi-pro quality. Will buy or swap good ham gear, war surplus goods or Hickok 539A tube tester. Leroy Larson, New Tribes Mission, Chico, Calif.

WANTED — Hammarlund HQ-120-X, or other good receiver, also Supreme TV manuals. Malcolm D. Burdick, Station Rd., Hampton, Conn.

FOR SALE — Tube tester and VTVM combination, R.C.P. model 808, perf. cond. and appearance, $50. J. Cabb, 2106 F St. NW, Washington 7, D. C.

SELL OR SWAP — 1955 Heathkit 3" scope, unwired, complete, $25; Heath griddip meter 1955 model wired tested, $15; textbooks and misc. parts. Make offer, will ship. Need photo Equipment. Lawrence, SS Maya, Pier 1, Pratt St., Baltimore, Md.

WANTED — New or good used 7JP4 picture tube, must be reasonable. Sell or trade Heath VC2 voltage calibrator, quick check filament tester, 400 w. 813 phone rig, SX28, Meissner shifter, books, etc. Wm. C. Wilson, R. 1, Athens, Ga.

FOR SALE — Unused Webster-Chicago model 228-1 dictation wire recorder, instructions, registration card, carrying case, foot control, microphone, pad time sheets, storage album, six spools new wire. FOB, best offer over $100. F. W. Pointer, 411 Pennsylvania, Peoria, Ill.

FOR SALE — Hickok 292X sig. gen. in showcase type metal case, $196, exc. cond. Century TV, 12594 Maiden, Detroit 13, Mich.

SELL OR TRADE — Heathkit TC-1 tube checker, Eico 566 multitester, Mallory UHF converter, Super-Sonic TV-FM booster, Crosley 10" TV, Remington typewriter, etc. Bruno DeCola, 379 S. Broadway, Salem, Ohio.

FOR SALE — Pickering D-140S and D-120M diamond-stylus cartridges and 132E record compensator. All perf., cartridges recently reconditioned by Pickering. Best cash offer. Maxwell Strange, 673 Colrain Road, Greenfield, Mass.

WANTED — Volume 2 of NRI service manual in good cond. State price. Wm. S. Berg, 607 2nd Ave. No., Park Falls, Wis.

FOR SALE — Heathkit isolation xformer model IT-I, Echophone EC-1. Need Radio-Craft from 1929, and Science and Invention from 1920. Chester Wegrzynowski, 51 North Central St., Buffalo 12, N. Y.

SELL OR SWAP: — Heath 6 v. btry. eliminator; Superior tube-condenser checker; Superior VOM. Want sm. tape recorder. Richard McCombs, RD 1, Paradise, Pa.

FOR SALE — Like new Webster 181 wire recorder, complete with mike and wire, $45; used hearing aids, good cond., $12 each. Andrew Valentino, 61-35 166 St., Flushing, N. Y.

FOR SALE — FM broadcast xmitter, 250 w., GE type BT-1-A model 4BT1A1, exc. cond. $1200 or offer. M. T. McKee, Jr., Box 307, Mt. Clemens, Mich.

FOR SALE — Bogen DB11OG Hi-Fi amp. and Webster 1127-270HF changer with GE RPX-050 crtg.; Heathkit 0-6 scope. Richard Ebeling, 33 Randolph Road, White Plains, N. Y.

FOR SALE — Loading coils for 75 meter mobile, and spring base — 3"D x 10"L, Q equals 270 at 2.5 mc., resonates at 3946 kc. up 29" from base, 65" whip above, $5 each. A. W. Crowell, 2351 Hillside Ave., Williamsport, Pa.

SELL OR SWAP — 2 1952 Buick auto radios RME UHF converter, and Astatic Scanafar booster, all in perf. cond.; 65BR9 RCA portable storage battery; GE L61 Beat-SW radio. Need E-200-C Precision gen., Q meter. Chester Benson, 311 South 5th, Richmond, Ind.

TRADE — Testing equip. and tools, radio and TV tubes and parts in perf. cond. Want motorcycle or jeep station wagon, late model. Ray Holdman, 204 Jackson St., Bonne Terre, Mo.

WANTED — DuMont Resonoscope. State cond. and price. S. H. Page, Box 404, Los Gatos, Calif.

FOR SALE — Heathkit sine-square wave gen. G-2, $20; Motorola portable AC-DC 59L14Q less batteries, $17.50; Motorola Golden Voice rcvr., $35; Jensen Fidelity Concert Speaker A-12, 1,000 ohm field 8 ohm VC, $11. E. D. Duckett, 3813 N. Bell, Chicago, Ill.

WANTED — Receiver and xmitter for 220 mcs. either mobile or fixed. Must have schematics. Send necessary information. Kenneth Holt, 1653 North Cherokee, Hollywood 28, Calif.

FOR SALE — Supreme tube tester model 504A, $35. Want good tape recorder. Will trade color camera or what? Harold Wurm, 1015 W. Grant St., Appleton, Wis.

WANTED — TS2-3 Heathkit alignment gen. and tube tester TC2. Earl Aasheim, Enderlin, No. Dak.

WANTED — Dumont 224A scope, reasonable. Quote price. C. A. Reppert, 5046 Verdun Ave., Los Angeles 43, Calif.

FOR SALE — RCA WO-56 7" oscilloscope, complete with instruction book, leads, and probe. L. n., $130. Local transaction only. D. J. Scandaglia, 1538-58th St., Brooklyn 19, N. Y.

FOR SALE — BC-312-F rcvr. with crystal phasing; operates either 117 VAC or emergency power; exc. cond., $50, freight paid anywhere in U. S. R. I. Vaughan, R. 3, Ithaca, N. Y.

SWAP — GE 506 alarm clock radio (white), and Bendix 300 radio (mahogany), both in first class cond. electrically. Need typewriter. Thomas Wilson, Box 101, Charleston, Tenn.

FOR SALE — 2 Rex UHF converters, model UC-1, 2 electro voice UHF TV converters model 3300, $18.50 each. Krantz Radio, 4627 Rising Sun Ave., Philadelphia 40, Pa.

SELL — HRO-50 used 4 hours, $275; Viking I TVI'ed, never used, 4D32 and tubes, $175; RCA 3" oscilloscope, $15; BC-221-AH; Kaar 40 w. 10 meter mobile phone xmitter, complete, $30; Gonset 3-30 converter, $20. Macy, 2346 Dundee Rd., Louisville, Ky.

WANTED — 12B8 and 25B8 tubes, C-D 40 + 40 mfd, 150 v. condensers, large cal. pistol. Will trade for test instruments, or cash. W. F. Onder, Rt. 2, Box 193, Arnold, Mo.

SWAP — Two perf. 832A tubes for new 829B tube. B. W. Southwell, Box 861, Dixon, Calif.

WANTED — Cash for Tech Manual covering BC669-D, part of SCR-543-D equip. and instruction manual on National NC-100 XA rcvr. Norman Wehrli, Box 1247, Kilgore, Texas.

TRADE OR SELL — 6AG5; 6AL5; 6BZ7; 6C4; 6T8; 6U8, etc., for other tubes. Also have many parts. Andrews, 740 Maple St., Bethlehem, Pa.

FOR SALE — IRE Proceedings 1953 and 1954 complete with directories; QST, CQ, Radio News, and Electronics magazines; meter; receiving and transmitting tubes. Guy W. Chittenden, 3408 S. Parnell Ave., Chicago 16, Ill.

SELL OR SWAP — Unused 250th, 4E27, 813; pair 110 v. 60 cy. Bendix Type II-2 selsyns; 6 position coaxial cable switch; 3" National Co. scope. Need 8 mm movie proj. Gonset converter, stamps. "Crown," Box 3042, Albuquerque, N. M.

WANTED — Model 80 or Hickok 292X sig. gen. State cond. and price. Cash. C. J. Hartneck, Lakefield, Minn.

SELL OR SWAP — Hammond Quick Chex tester, complete, $5; 200 radio TV fuses, $7.50; Washburn dry cell battery tester, $3. All A-1 cond. or swap for 8 or 16 mm films. Vincent Malack, 10530 Edbrooke Ave., Chicago 28, Ill.

FOR SALE — Disposing entire accumalation of electronic material, freq. meter, tape recorders, turntables, mikes, amplifiers, etc. Send for list and prices. K. Coleman, Box 808, Fort Pierce, Fla.

FOR SALE — Six meters, 4½ in. square bakelite cases, O-1 MA movement, VOM scale, knife-edge pointer, 50 ohm internal resistance and in original boxes, each $5 postpaid. L. Cohen, 151-09-34th Ave., Flushing 54, N. Y.

FOR SALE — Riders Manuals 10 through 16, 18, and 19. All 9 for $90 plus shipping charges. Mac's Radio Service, 614 So. Michigan Ave., Stevens Point, Wis.

FOR SALE — Fine 2-tube Scott radio chassis with 15" speaker. Exc. tone, reasonable; high fidelity amplifier, with preamplifier, custom built. A. J. Blauvelt, 1302 Commonwealth Ave., Allston 24, Mass.

SELL OR TRADE — Vols. 1, 2, 4, 5, 6, 9, 10 Rider manuals, $3.50 each, plus postage, or trade for what you have. DE 12½" TV, $30, plus frieght. P. Ferrino, 4309 Kansas Ave. NW, Washington 11, D. C.

SELL — GE A1-200 Pre-amp., $35; BC-614E speech amp., $50; Wilcox F-3 single channel rcvr., $25; BC-1031A Panadaptor, $75. G. H. Goldstone, 25416 Parkwood, Huntington Woods, Mich.

WANTED — Monoscobe tube, any type or age. Will pay any reasonable price; early TV course by American Television Institute; also early mechanical TV set. Pat Blaney, New Straitsville, Ohio.

FOR SALE — Novice band xmitter capable of 75 w. input. With coils and tubes less power supply, $15. Send for photo. E. E. Ellsworth, 245 Fir, Park Forest, Ill.

SELL — Unused Millen 90800 50 w. xmitter-exiter with 10 meter coils, $28; Eico 221 VTVM with Eico H.V. and R.F. probes, good cond., $25, FOB only. John Lee, 6544 Randi, Canoga Pk., Calif.

SWAP — Technical manuals for ART-13, ARC-1, ARC-3 SCR-499, GRC-38, etc., for rcvr. R-28/ARC-5 RT-7/ARN-1 or Beacon rcvr. BC-1206. Michael Colbert, 310 W. 93rd St., New York 25, N. Y.

WANTED — In good cond.: RCA 9 lesson Color Television home study course for $18; RCA 10 unit home study course in Television Servicing for $15. F. O. Steele, 2725 Van Ness Avenue, San Francisco, Calif.

FOR SALE — Power supply for rack mounting 1750-0-1750 v. AC 400 MA DC CCS; BC-459 xmitter partially modified, calibrated bandspread dial, spare tubes, instruc. mounting rack, extras; Thordarson T-45361 plate xformer; make offer. H. Wood, 451 Manor Rd., Hatboro, Pa.

FOR SALE — National NC-125 rcvr. with matching 10" speaker. Both used very little and immaculate in appearance, $100 F.O.B. Paul Kuzmak, 67 Buckland Rd., Wethersfield 9, Conn.

FOR SALE — Eico 360 sweep gen., with 5 MC crystal, probe, operating manual, factory calibrated, l. n., $29. Want Acro-Sound TO-300 output xformer. John L. Campbell, 2034 E. 26th St., Brooklyn 29, N. Y.

SELL OR TRADE — Presto 8N recording turntable C/W 1D cutting head, 160-A automatic equalizer, and D-7-EH playback arm, also Biddle Bridge-MEG resistance tester model 656-V. Want good tape recorder or test equip. S. Albert, R 1, Box 1328, Vista, Calif.

SELL OR TRADE — Riders 1 to 15; Sams 1 to 124 with binders; Hickok 288X and 209; approx. 200 radio tubes. Want 10 key adding machine; calculator; Royal typewriter with 18" carriage, or what have you? Russell Myers, Matewan, W. Va.

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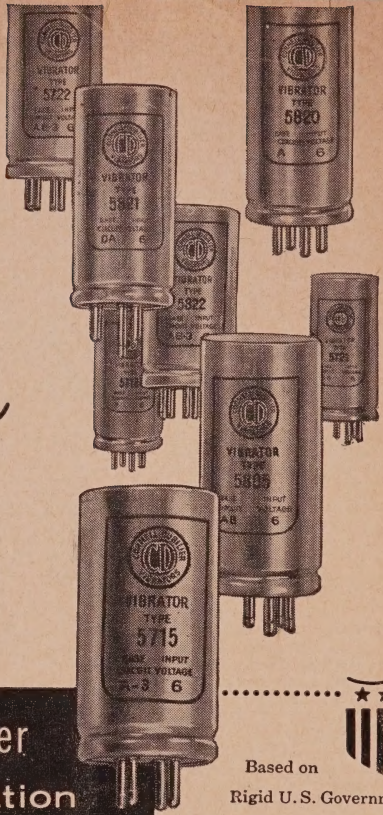

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